ABSTRACT

The invention relates to a process for precision-machining a cylindrical inner surface, in particular a cylinder bearing surface, which has material of different hardnesses in the axial direction. The cylindrical inner surface is subjected to a precision-turning step, a preliminary honing step and a precision-honing step. The process is distinguished by the fact that the preliminary honing step produces a cone (11) in the cylindrical inner surface, in such a way that the cone (11) widens out from a harder region (4) toward a softer region (6). In the subsequent precision-honing step, the cone (11) is compensated for again in the harder region (4) to produce a cylindrical inner surface, whereas the cone (11) is retained in the softer region (6). This prevents the fine abrasive particles on the precision-honing stone from becoming clogged as a result of contact with the softer region.